

Appendix G: Draft Floodplain and Wetland Statement of Findings for the Yosemite Lodge Area Redevelopment

Yosemite Lodge Area Redevelopment

Yosemite National Park

Lead Agency: National Park Service

Draft Floodplain and Wetland Statement of Findings

Recommended:

Superintendent, Yosemite National Park

Date

Concurrence:

Regional Safety Officer

Date

Certification of Technical Adequacy and Servicewide Consistency:

Chief, Water Resources Division

Date

Approved:

Director, Pacific West Region, National Park Service

Date

Purpose of this Statement of Findings

The purpose of this Draft Floodplain and Wetland Statement of Findings is to review the Yosemite Lodge Area Redevelopment in sufficient detail to:

- Avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands wherever there is a practicable alternative
- Describe the effects on floodplain and wetland values associated with the proposed action
- Provide a thorough description and evaluation of mitigation measures developed to achieve compliance with Executive Order 11988 (Floodplain Management), Executive Order 11990 (Protection of Wetlands), National Park Service Director's Order 77-2 and Procedural Manual 77-2: Floodplain Management and National Park Service Director's Order 77-1 and Procedural Manual 77-1: Wetland Protection
- Avoid the long-term and short-term adverse impacts associated with the occupancy and modification of floodplains to the extent possible and restore, when practicable, natural floodplain values previously affected by land use activities within floodplains
- Ensure "no net loss" of wetland functions or values

Affected Floodplain

Floodplain Extent

The 100-year floodplain is the area that water inundates during a 100-year flood, or the annual peak flow that has a 1% chance of being equaled or exceeded in any given year. Following the January 1997 flood, National Park Service staff mapped the actual extent of the flood inundation in Yosemite Valley and the U.S. Geological Survey determined actual flood flow rates at the Pohono and Happy Isles gauging stations. These data were used to calibrate the flood frequency analysis (i.e., the predicted flow rate of a 100-year flood) and the flood inundation models (i.e., the predicted area that will be inundated by a 100-year flood) for Yosemite Valley (NPS 2000a).

General Flooding Characteristics

The character of the floodplain varies in different locations in Yosemite Valley due to local hydraulic controls (NPS 2000a). As a tool to understand why different portions of the Merced River in Yosemite Valley reacted differently to the 1997 flood, a study divided the river into five reaches with similar geology and hydrology (NPS 1997a). Reaches 1 and 2 extend upstream from El Portal to the El Capitan Moraine. Reach 3 extends upstream from the El Capitan Moraine to Housekeeping Camp, and Reaches 4 and 5 extend upstream from Housekeeping Camp to the narrow reaches of Tenaya Creek and the upper Merced River (NPS 1997a). In Reach 3, the central chamber of Yosemite Valley, flood waters become impounded behind the El Capitan Moraine, which acts as a "check dam" during flood events and is the hydraulic control for this reach (NPS 1997a). During floods, flow velocities in this reach are low due to the increased depth and area of the water impounded behind the moraine. Upstream and downstream of Reach 3, the Valley is steeper and more constricted, and these areas are subject to higher velocity flood flows (NPS 1997a).

Description of Site-Specific Flood Risk

Developed areas of Yosemite Lodge have been periodically subject to flooding. Following a flood in 1950, the National Park Service placed earthen fill to raise some cabins at Yosemite Lodge about two and a half feet (from an elevation of 3,956.5 feet to 3,959 feet). In 1951, the Yosemite Park and Curry Company requested that the National Park Service place extensive riprap and construct a dike along Yosemite Creek to protect Yosemite Lodge from flooding (Milestone 1978). However, the National Park Service decided that construction of a dike along the flat valley floor was impractical and contrary to management policies (Milestone 1978).

Throughout Yosemite Valley, there are examples of flow diversion structures installed to manipulate river flows to prevent flooding and protect facilities. One such diversion, located at the confluence of Yosemite Creek and the Merced River, was installed to divert high flood flows through an overflow channel and away from guest lodging units in the lower portion of the Yosemite Lodge Area Redevelopment site. Referred to as a diversion dam, this man-made structure is constructed with rock and soil along the northern river bank to a height capable of diverting high flows. The presence of this structure may have assisted to reduce flood damage during the January 1997 flood.

Following the 1997 flood, the National Park Service determined that a number of Yosemite Lodge cabins were located within the 10-, 20-, 50-, and 100-year floodplains (NPS 1997a). Many of these structures were irreparably damaged and subsequently removed.

In an analysis of hydrologic, hydraulic, and geomorphic attributes of the 1997 flood, investigators found “few readily observable changes to the river channel, floodplain, or riparian vegetation in this reach.” The analysis concluded that impacts to infrastructure stemmed primarily from inundation and rafting of unsecured floatable objects. For structures such as bridges and roads, there was “very little consequence stemming from inundation in the absence of significant velocity.” Investigators also noted that “even floating trees and other large woody debris caused no significant damage to bridges because flow velocities were so low. In general and for the same reason, buildings also realized little structural damage from flowing water or debris (Madej 1997).”

This finding is consistent with a 1937 flood damage report cited by Milestone (1978) that “a remarkable feature of the storm was that the greatest damage resulted from effects of high water on the things that man had constructed rather than violent changes to the physical features.”

Existing Structures in Floodplain

Since the 1997 flood, the visitor cabins, two multi-unit cottages, employee housing, and several other structures have been removed from the 100-year floodplain at Yosemite Lodge. Most of the remaining structures in the 100-year floodplain in the project area are Class I actions. These include four motel-type buildings (Maple, Alder, Hemlock, and Juniper), an employee Wellness Center, Yosemite Lodge housekeeping facilities, several small structures near Tamarack Cottage, a section of Northside Drive west of Yosemite Creek Bridge, Yosemite Creek Bridge and Yosemite Creek Pedestrian/Bicycle Bridge, Yosemite Lodge roadways, and utilities. Utilities within the 100-year floodplain include three groundwater wells that provide drinking water in the Valley, the Yosemite Creek wastewater lift station, and sewer, water, and electric lines (see figure III-1).

Affected Wetlands

Wetland Extent

Regionally, wetlands¹ and deepwater habitats in Yosemite Valley cover 996 acres, including riverine and palustrine habitat. Wetlands and deepwater habitats within the project area consist of a total of 16.28 acres of riverine and palustrine wetlands (see figure III-1). A wetland survey of the project site was completed to delineate and identify Cowardin wetlands and waters of the United States (Jones and Stokes 2002). Numerous wetlands cover the floodplain south of the existing multi-use paved trail.

Wetland Characteristics

Biotic Value

Wetlands within the project area are broadly classified as riparian in nature and include aquatic, riparian, and floodplain communities. Specific wetland classes identified within the project area are limited to the following:

- *Riverine upper perennial* – main channel of the Yosemite Creek, which flows along the east side of the project site, descends precipitously to the Valley via upper and lower Yosemite Falls and proceeds south through the alluvial fan at the base of the fall to its confluence with the Merced River southeast of Yosemite Lodge
- *Riverine intermittent streambed* – several unvegetated streams (or sparsely vegetated with grasses), which contribute streamflow maintenance, water supply, erosion control, sediment retention and detrital export to downstream systems, are located throughout the project area with nonsoil substrates that are saturated and/or covered by shallow water at some time during the growing season
- *Palustrine forested* – riparian forest habitat (e.g., white alder riparian forest, oxbow and cutoff channel) along the Merced River and/or Yosemite Creek subject to various flooding regimes within the project area
- *Palustrine scrub shrub* – riparian scrub (e.g., willow) habitat in the floodplain subject to various flooding regimes within the project area
- *Palustrine emergent* – riparian emergent (e.g., herbaceous species such as sedges and rushes) habitat along Merced River and Yosemite Creek subject to various flooding regimes within the project area

The size of wetlands in the floodplain is diminishing due to encroachment by conifers, resulting in habitat conversion similar to upland habitat. The integrity of palustrine emergent wetlands is degrading due to introduction and spread of non-native plant species and conifer encroachment. Heavy recreation-related foot traffic and trampling on ill-defined trails is degrading and fragmenting wetlands in the floodplain and at Camp 4. Large areas of overhanging riparian vegetation along riverine intermittent streambeds at Camp 4, Yosemite Creek, and the Merced River within the project area are absent, resulting in a lack of nutrients, organic matter, and shade to riverine systems. Wetland connectivity is being compromised in the project area. Roads, structures, utilities, and water diversions are compromising the connectivity between the Merced

¹ Consistent with National Park Service Procedural Manual 77-1: Wetland Protection, wetlands herein are described using the Cowardin classification system.

River and upland habitats. The flow across the floodplain south of Yosemite Lodge is blocked by a diversion dam. This action has substantially altered river morphology at the confluence of Yosemite Creek and Merced River, desiccated floodplain soils, and encouraged conifer and non-native plant invasion.

Vegetation²

Upland areas within the 100-year floodplain support developed open area-sparse vegetation (where primarily ponderosa pine and incense-cedar are present), ponderosa pine forest, impacted conifer corridor, and conifer corridor. These communities have undergone alterations through changes in fire frequency, spread of fungus root rot, and establishment of non-native species. Incense-cedar and ponderosa pine form unnaturally large stands due to lack of fire and modified hydrology. As a result, conifers invade meadows, riparian areas, and oak woodlands.

Riparian areas in the floodplain are situated at the interface between terrestrial and aquatic ecosystems. These areas support sandbar willow woodland, dense cottonwood/willow forest, conifer corridor (primarily incense-cedar and ponderosa pine), and oxbow and cutoff channels. Typically, riparian vegetation is regularly disturbed by the deposition and removal of soil and the force of floodwaters, and readily colonizes newly formed river-edge deposits. However, because of the lack of fire and modified hydrology, conifers (primarily incense-cedar and ponderosa pine) have invaded riparian areas.

Riparian vegetation along riverine intermittent streambeds within the project area is absent, or only sparsely vegetated with a few grasses, resulting in a lack of nutrients, organic matter, and shade to riverine systems.

Meadow communities, including carex wet meadow and grass/sedge meadow, intergrade with riparian communities near the Merced River and Yosemite Creek within the project area. Many historic meadows have been converted to upland vegetation types or no longer exhibit meadow characteristics due to development. Because of the lack of fire, altered hydrologic conditions, and encroachment of conifers, meadows within the project area have been altered.

Wildlife

Riparian areas are also important foraging grounds for aerial and ground foraging insectivores such as *Myotis* bat species and pallid bats. Mammals such as western harvest mouse, deer mouse, western gray squirrel and raccoon also utilize streamside habitats for nesting and foraging. Raptors that breed and nest in riparian woodland communities include red-tailed hawk, sharp-shinned hawk, Cooper's hawk and others.

Seasonal aquatic habitat within Yosemite Creek provides drinking water for wildlife and may support breeding amphibians and insects. Fisheries resources within the Merced River and other drainages within the Yosemite Valley have historically been low in species diversity. Fish are unlikely to use Yosemite Creek to a significant extent, although the presence of a few riffles with appropriate gravel sizes may sometimes enable trout to spawn in Yosemite Creek during the spring. Smaller species such as riffle sculpin may occupy the channels late into the summer. Human disturbance has eliminated riparian and wetland vegetation along seasonal drainages

² Vegetation types are based on descriptions in the *Final Valley Plan/Supplemental Environmental Impact Statement* (National Park Service 2000a) and "The Plant Communities of Yosemite Valley — A Map and Descriptive Key" (National Park Service 1994b). Refer to these documents for detailed descriptions of vegetation types in the project area.

located throughout Camp 4 and the proposed Indian Cultural Center site, and has altered the natural structure of these features, reducing their suitability for amphibians and fish.

Riverine intermittent streambeds provide a seasonal water source for wildlife, but they may not provide significant habitat or food because they lack vegetation.

Special-status Species

Special-status wildlife species known to occur or potentially occur in the riparian and meadow areas of the floodplain include bald eagle, Sierra pygmy grasshopper, Harlequin duck, rufous hummingbird, Cooper's hawk, sharp-shinned hawk, willow flycatcher and yellow warbler. Only foraging habitat for bald eagle and rufous hummingbird is present in the floodplain, all other species are known to or potentially breed in the floodplain.

Special-status plant species known or likely to occur in meadow vegetation of the floodplain include Rawson's flaming-trumpet, slender-stalked monkeyflower, Yosemite popcorn-flower, northern bedstraw, false pimpernel, and ladies' tresses.

Scenic, Cultural, Socioeconomic Values

In general, wetlands are considered aesthetically-pleasing natural features. Wetlands are culturally valuable due to their importance as potential gathering areas of traditional plants for American Indian groups. Culturally important plants are used as food, medicines, and traditional tools such as basketry. The seasonal water flow and lack of vegetation in the riverine intermittent streambeds limit the scenic and cultural value of these wetland habitats. There is no socioeconomic value associated with wetlands within the project area.

Existing Structures in Wetlands

Revetments (riprap and similar reinforcements) were installed along the banks of Yosemite Creek and the Merced River in attempts to limit erosion and the lateral migration of the stream channels (Milestone 1978). A diversion dam located at the confluence of Yosemite Creek and the Merced River restricts flow across the Merced River floodplain. It was designed to divert high flood flows through an overflow channel and away from guest lodging units in the lower portion of the Yosemite Lodge Area Redevelopment site.

Environmental Consequences of the Proposed Action on Floodplain and Wetlands

Floodplain

Impact to the Merced River Floodplain. Under the proposed action, guest lodging and lodge facility buildings would be removed from the portion of the Merced River 100-year floodplain located between the central lodge area and the Merced River, resulting in a local, long-term, minor, beneficial impact. Structures proposed or remaining in the floodplain include realigned Northside Drive, registration parking lot, a multi-use paved trail, lodge parking and roadways, overnight bus parking, and the sewage lift station. A major flood, such as the event that occurred in January 1997, is likely to occur again in the near future. Upon removal of the guest lodging buildings (Hemlock, Maple, Alder, and Juniper), the maintenance buildings, Wellness Center and

miscellaneous buildings, the 100-year floodplain would be restored to near-natural flow conditions because the major obstacles to high flood flows would be removed. The roads and parking lots proposed for this area under the proposed action could impact flood flows but these developments would not be expected to substantially alter the flow path of the flood waters because they would have low relief and would not be constructed on an embankment. The proposed action would improve the conditions of the 100-year floodplain by removing the major flow impediments, including guest lodging and maintenance buildings.

Impacts of Man-made Flow Diversions. The diversion dam located at the confluence of Yosemite Creek and the Merced River is constructed of rock and soil along the northern river bank to a height capable of diverting high flows. Under the proposed action, this flow diversion would be removed to restore the natural flood flows of the Merced River within this reach. Once removed, high flood flows in the Merced River would be unimpeded to inundate portions of the floodplain not previously possible due to the presence of the diversion dam. Removing the diversion dam would return the affected portion of the floodplain to a more natural flow condition. Since the diversion dam was constructed to protect the lodging units closest to the Merced River from flooding and these units were removed subsequent to the 1997 flood, removal of the diversion dam would not introduce a new flood hazard because the proposed action would remove the remaining lodging units within the 100-year floodplain. The removal of the diversion dam structure from the banks of Yosemite Creek would help return the Merced River 100-year floodplain to near-natural free-flow conditions and therefore would be a beneficial impact.

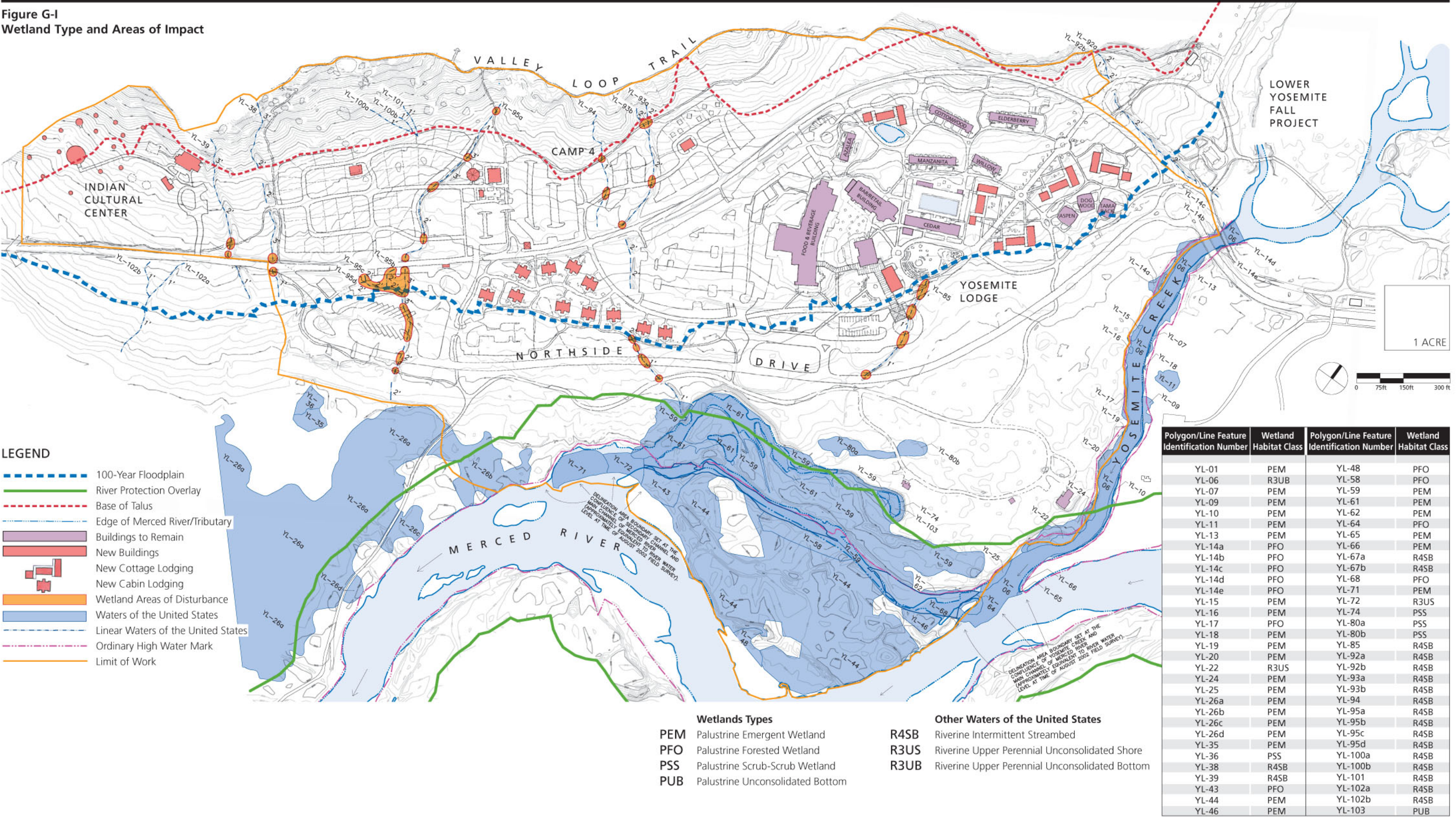
Additionally under the proposed action, the rip-rap revetment currently in place along Yosemite Creek would be removed to restore the natural flow regime along Yosemite Creek. As the affected reach is relatively short, the impacts to the creek by the removal may only be realized locally and therefore, the impact of the revetment removal is considered local, long-term, minor, and beneficial.

Impacts of Drainages and Impervious Surfaces in Floodplain. Under existing conditions, 6% of the 100-year floodplain is covered with impervious surface areas. Under the proposed action, the impervious surface area increases to 11%. Under existing conditions, there is 4% semipervious area within the 100-year floodplain. The semipervious area would be reduced to less than 1% under the proposed action. The increases in impervious floodplain surface area could be realized as reduced lateral underflow of groundwater to wetlands, localized water level decreases in the shallow water table, or increased overland flow of storm water flows. Storm water flow increases could also lead to increased surface soil erosion. Impacts of drainages and impervious surfaces in the floodplain would be local, long-term, minor, adverse impact.

Wetlands

Construction-related Effects on Wetlands. The size, integrity and connectivity of wetlands (i.e., riverine intermittent streambeds) at the Yosemite Lodge Area Redevelopment site would slightly diminish in the project area due to construction during Phases 1 and 2 of construction, resulting in a local, short-term, moderate, adverse impact. During Phases 1 and 2 of construction, a cumulative total of 0.43 acre of wetlands (specifically, riverine intermittent streambed) would be adversely affected by construction activities due to installation and removal of utilities and development of project facilities, including parking areas, roadways, and trails (i.e., multi-use, pedestrian and stock/pedestrian trails) (see figure G-1). The total length of disturbance includes the footprint of development and additional area to include adjacent disturbance associated with

Figure G-I
Wetland Type and Areas of Impact



SOURCE: National Park Service, Jones and Stokes, and Sasaki Associates Inc.

NOTE: These drawings are conceptual in nature and final site and building elements may vary slightly. Not all features are to scale.

the construction work limits. Construction disturbance limits would be approximately 7.5 feet on either side of proposed development, including roadways, parking areas, multi-use trails, and approximately 5 feet on either side of proposed pedestrian trails and stock/pedestrian trails. The proposed action would affect riverine intermittent streambeds.

To lessen the intensity of adverse impacts on wetlands, utilities would be installed using jack-and-bore construction techniques. To avoid impacts in other sensitive areas, some underground utility lines would be abandoned in place. Appropriately-sized culverts would be installed to accommodate flow, and riverine intermittent streambeds would be crossed using combinations of riprap, culverts, and channel lining to lessen the intensity of erosion and sedimentation.

With implementation of mitigation measures the intensity of the adverse effects on wetlands would be reduced to minor, resulting in a local, long-term but temporary adverse impact. As described in Appendix C, Mitigation Measures Common to All Action Alternatives, measures that would protect wetlands during construction activities and minimize eroding soils during construction activities include, but is not limited to, spill prevention and pollution control measures, utilization of wetland protection and compensation measures such as installing protective fencing material to protect wetlands from construction activities, using silt fencing to reduce erosion, working in wetlands during the low-flow season, avoiding wetlands to the extent feasible, and restoring habitats at a 1 to 1 ratio based on the acreage of wetlands disturbed.

Enhancement-related Effects on Wetlands. Under the proposed action, project effects on wetlands would moderately improve in the long-term following implementation of restoration actions (see figure II-13). These actions would result in a local, long-term, negligible to minor, beneficial impact.

As part of the restoration effort, revetments and a diversion dam along Yosemite Creek would be removed to restore overland flow across the Merced River floodplain. The National Park Service would revegetate denuded banks at and downstream of the confluence of Yosemite Creek and the Merced River, eradicate exotic plants, and reestablish a more natural stand of riparian forest and oak woodland on the floodplain. Removal activities of revetments and the diversion dam could dislodge sediments into the creek, resulting in bank erosion, increased turbidity, adverse effects on aquatic species and decrease in water quality. These effects would be considered moderately adverse in the short-term. Implementation of mitigation measures (including, but not limited to, implementing spill prevention and pollution control measures, using silt fencing for erosion and sediment control, and working in wetlands during the low-flow season), as described in Appendix C, Mitigation Measures Common to All Action Alternatives, would reduce the intensity of these effects to negligible. As a result, the overall restoration efforts would improve wetland size, integrity, and connectivity within the project area.

The landscape of the Yosemite Lodge Area Redevelopment site, including most above-ground riverine intermittent streambeds, would be revegetated based upon the principles described in the *Comprehensive Landscape and Revegetation Plan for Yosemite Lodge* (NPS 1999b). This plan presents specifications for the collection and propagation of native plants, interim seeding during Phase 1 and 2, final seeding during Phase 3, planting, and landscape maintenance during the establishment period. Existing and historic vegetation communities would be re-established and enhanced within the project area using an applied ecological approach to revegetation.

Overall, with implementation of mitigation measures the effect of enhancement on wetlands would be a local, long-term, negligible to minor, beneficial impact.

Construction- and Operation-related Effects on Wildlife in Wetlands. Under the proposed action, an indirect adverse effect of the riparian and meadow restoration between Yosemite Lodge and the Merced River may increase water levels that could favor bullfrogs. An effort would be made to eradicate bullfrogs through an organized and consistent capture and killing program to mitigate this effect resulting in a minor, adverse impact.

In the long term, restoration and revegetation of the Yosemite Lodge Area Redevelopment site would have a beneficial effect on wildlife and highly valued resources, which include the Merced River ecosystem and riparian communities associated with the Merced River. In the Sierra Nevada, more species and greater numbers of wildlife are found in riparian habitats than in any other habitat. Species that rely on diversity and connectivity of habitats, such as black phoebes, Cooper's hawks, and Pacific tree frogs would benefit from these activities, although much of these areas would continue to be affected by the adjacent human use and the realignment of Northside Drive. In addition, removal of the Yosemite Creek diversion dam would benefit aquatic wildlife by restoring the natural hydrology of the area. Overall, the proposed action would result in a local, long-term, negligible, beneficial impact to wildlife in wetlands and highly valued resources.

Construction- and Operation-related Effects on Special-status Wildlife Species in Wetlands.

During Phase 1 of the proposed action, removal of trees or snags would adversely affect Cooper's hawk and sharp-shinned hawk breeding or foraging within the riparian areas of the floodplains. Bald eagle foraging would also be adversely affected during Phase 1. Construction activities, heavy equipment movement, and general activity and noise adjacent to active bird nests could result in the harassment of adults and loss of young, resulting in a readily apparent, moderate adverse impact.

Construction-related effects of Phase 3 removal of the Yosemite Creek diversion dam and restoration and revegetation activities between Yosemite Lodge and the Merced River would involve small construction crews and less equipment than Phase 1 and Phase 2 activities. Phase 3 activities would be confined to seasonal disturbance. Human activity and construction noise could result in nest abandonment or loss of young and reproductive potential, resulting in a readily apparent, adverse effect on yellow warbler and Harlequin duck. Although the Merced River riparian corridor provides low-quality habitat for willow flycatcher, this species has not been observed nesting in the Valley for 30 years and is not likely to be affected by Phase 3 activities.

The implementation of preconstruction surveys for breeding birds, potential nest monitoring, and other measures during all three phases of construction (see Appendix C, Mitigation Measures Common to All Action Alternatives) would reduce construction-related effects on special-status bird species. With mitigation, construction-related activities would have a local, long-term but temporary, negligible, adverse effect on special-status birds. Preconstruction surveys would identify any special-status bird species nesting within or adjacent to construction areas. Nest monitoring would ensure that activities with the potential to disturb nesting special-status bird species do not occur adjacent to active special-status bird species nests during the nesting season.

Operation-related effects of restoration and revegetation efforts, including restoration of hydrology in the Yosemite Creek and Merced River floodplain through removal of the diversion dam, would have a beneficial effect on special-status bird species in the long term. Although much

of these areas would continue to be affected by adjacent human use and the rerouting of Northside Drive, restoration and revegetation efforts would have a beneficial effect on bald eagle, golden eagle, peregrine falcon, white-headed woodpecker, and rufous hummingbird foraging habitat and on riparian breeding habitat for Harlequin duck, willow flycatcher, and yellow warbler. Modification of Northside Drive to a multi-use paved trail would reduce traffic disturbance in upland habitats north of Yosemite Lodge. Exclusion of motor vehicles from Northside Drive would improve habitat quality for California spotted owls in areas adjacent to the road. Overall, operation of Alternative 2 would result in a local, long-term, negligible, beneficial impact to special-status bird species compared to Alternative 1.

Activities associated with Phase 3 restoration and revegetation of the Merced River riparian and meadow habitat would result in slightly detectable, short-term, minor, adverse effects on Sierra pygmy grasshopper through human and vehicle disturbance. Measures to prevent adverse effects on this species include preconstruction surveys to determine its presence in areas of suitable habitat along the Merced River and avoidance of occupied habitat. With mitigation measures, the proposed action would have a negligible to minor adverse effect on this species, due to avoidance of habitat that supports this species and prevention of disturbance to the species during construction. Restoration activities would have a negligible beneficial effect on the Sierra pygmy grasshopper through localized restoration of riparian habitat and the creation of suitable habitat for this species along the Merced River and Yosemite Creek.

Overall, the proposed action would result in a local, long-term, negligible, beneficial impact on special-status species in wetlands and highly valued resources.

Construction-related Effects on Special-status Plants in Wetlands. Special-status plant species known or likely to occur in the floodplain include Rawson's flaming-trumpet, slender-stalked monkeyflower, Yosemite popcorn-flower, northern bedstraw, false pimpernel, and ladies' tresses. Potential trampling associated with Phase 3 riparian and meadow restoration activities of the proposed action along the Merced River would result in slightly detectable, minor, adverse impacts to these species. Measures such as preconstruction surveys during the appropriate time of year and avoidance of special-status plant populations where feasible (see Appendix C, Mitigation Measures Common to All Action Alternatives), would reduce adverse effects on special-status plant species. With the implementation of these measures, Alternative 2 would have a negligible to minor adverse effect on these vegetation species, due to avoidance of special-status plants and protection of special-status plants during construction.

Alternatives Considered

Alternatives considered in the *Yosemite Lodge Area Redevelopment Environmental Assessment* (Chapter II, Alternatives) include the Alternative 1 (No Action), Alternate 2 (Proposed Action) and Alternative 3.

Alternative 1 (No Action)

Alternative 1, the No Action Alternative, represents conditions and management practices as they currently exist at the Yosemite Lodge Area Redevelopment site. The No Action Alternative represents the status quo; the existing facilities would remain unchanged, except for normal maintenance and repair.

Alternative 2 (Proposed Action)

Alternative 2 would implement approved *Yosemite Valley Plan* actions for the Yosemite Lodge Area Redevelopment, including providing 251 lodging units and overnight parking spaces at Yosemite Lodge, providing 65 campsites and 195 parking spaces at Camp 4, relocating Northside Drive south of the Lodge, and converting existing Northside Drive to a multi-use paved trail. Consistent with the 1980 *General Management Plan*, Alternative 2 would develop an Indian Cultural Center at the site of the last-occupied Indian Village in Yosemite Valley, west of Camp 4.

The layout of the Lodge site under Alternative 2 would feature similar types of lodging units grouped together. The one-story cabin units would be clustered in the center of the Lodge site and the two-story cottages would be interspersed with existing two-story lodge buildings. This alternative features centralized parking with the largest parking lot at the Lodge located in the center of the site.

Alternative 2 would provide two small-scale viewing plazas along the proposed promenade, and the amphitheater would be relocated and expanded to a larger capacity (accommodating 300 to 350 individuals).

At Camp 4, Alternative 2 would provide a free-standing climbing display building, a cooking pavilion and gear storage lockers, and shared fire rings. Western Camp 4 would feature a renovated restroom building. A new restroom building would be located in the eastern area of Camp 4, and a new restroom and shower building would be located near Camp 4 parking.

Alternative 2 would develop an Indian Cultural Center at the site of the last-occupied Indian Village in Yosemite Valley. The Indian Cultural Center would include a ceremonial roundhouse, sweatlodge, 15 cedar bark umachas (houses), and a community building.

Site Restoration and Revegetation

Three areas on the Yosemite Lodge Area Redevelopment site are proposed to be restored, including the area between the proposed realignment of Northside Drive at Yosemite Lodge and the Merced River (the site of former Yosemite Lodge cabins, Pine Cottage, and employee housing), the area between the cabins and parking area on the Lodge site, and an area between Camp 4 and the Indian Cultural Center (see item 10 on figures II-2 and II-3). Not including impervious and semipervious surfaces in the restoration areas, approximately 37.89 acres would be restored under the proposed action.

The restoration effort would remove the revetment and diversion dam along Yosemite Creek to restore overland flow across the Merced River floodplain. The National Park Service would revegetate the Merced River channel at and downstream of the confluence, eradicate non-native plants, and reestablish a more natural stand of riparian forest and oak woodland on the floodplain. Oak woodland rehabilitation would be encouraged through plantings of California black oak seedlings. As part of the restoration effort, the National Park Service would redirect visitor traffic around disturbed areas with fencing and interpretive signs, and decompact and revegetate inappropriate social trails and abandoned roads. The National Park Service would create riverbank access with a boardwalk between Yosemite Lodge and the Merced River's north bank sand bar to allow visitors access to the river without damaging the floodplain, wetlands, riparian communities, or the river banks.

Restoration activities would include eradicating non-native Himalayan blackberry invasion of the eastern portion of the Lodge site and non-native maple trees inhabiting the western portion of the Lodge site. Young conifer proliferation would be discouraged through groundwater alteration, social trail decompaction, and prescribed burns. National Park Service staff would conduct low-intensity prescribed burns to discourage conifer invasion and support rehabilitation of oak woodlands and riparian forests. The restoration effort would include conducting channel morphology, groundwater, and vegetation monitoring to document restoration changes and inform resource management efforts.

The landscape of the Yosemite Lodge Area Redevelopment site would be revegetated based upon the principles described in the *Comprehensive Landscape and Revegetation Plan for Yosemite Lodge* (NPS 1999b). Existing and historic vegetation communities would be re-established and enhanced within the project area using an applied ecological approach to revegetation. Revegetation and landscaping at the site would emulate natural vegetation succession, native community structure, and species composition. The diversity of the physical setting of the project area has historically determined the diversity of the vegetation communities found there. Revegetation activities would use this historic distribution as a model to guide the replanting of community-based assemblages of native plant species in their ecologically appropriate locations. Salvage vegetation would be used to the extent possible. A landscape management plan with monitoring component would be developed to ensure successful revegetation, maintain plantings, and replace unsuccessful plant materials. NPS would maintain the landscape as vegetation matures to maintain important view corridors of the site. The landscape would provide communal outdoor spaces that encourage visitors to experience the out-of-doors.

Alternative 3

Similar to Alternative 2, Alternative 3 would implement approved *Yosemite Valley Plan* actions for the Yosemite Lodge Area Redevelopment, including providing 251 lodging units and overnight parking spaces at Yosemite Lodge, providing 65 campsites and 195 parking spaces at Camp 4, relocating Northside Drive south of the Lodge, and converting existing Northside Drive to a multi-use paved trail. Consistent with the 1980 *General Management Plan*, Alternative 3 would develop an Indian Cultural Center at the site of the last-occupied Indian Village in Yosemite Valley, west of Camp 4.

Alternative 3 differs from Alternative 2 primarily in lodge site layout and the provision and location of Lodge and Camp 4 community facilities.

The layout of the Lodge site under Alternative 3 would feature a more uniform lodging unit layout than Alternative 2. Under Alternative 3, new one- and two-story buildings would be interspersed together on the Lodge site. Alternative 3 would feature a remote parking configuration with the largest parking lot at the Lodge located at the western end of the site.

Alternative 3 would provide one large-scale viewing plaza along the proposed promenade, and the amphitheater would be renovated in its current location and would retain its existing capacity (accommodating 150 to 200 individuals). Alternative 3 would provide rotating interior display space at the Lodge instead of a climbing display building at Camp 4, as proposed under Alternative 2.

Individual fire rings would be provided at Camp 4. Western Camp 4 would feature a renovated restroom building. New restroom and shower buildings would be located near the Camp 4 parking lot and in the eastern area of the campground.

As described under Alternative 2, Alternative 3 would develop an Indian Cultural Center at the site of the last-occupied Indian Village in Yosemite Valley. The Indian Cultural Center would include a ceremonial roundhouse, sweatlodge, 15 cedar bark umachas (houses), and a community building.

Site Restoration and Revegetation

Restoration efforts under Alternative 3 would be the same as described under the proposed action; however, approximately 37.31 acres would be restored under Alternative 3, not including impervious and semipervious surfaces in the restoration areas. The revegetation activities would be the same as the proposed action (see figure II-21).

Design or Modifications to Minimize Harm to the Floodplain and Wetlands

Although the proposed action has been designed to mitigate harmful effects to the floodplain and wetlands, the National Park Service (and its contractors) would implement mitigation measures, prior to, during and after construction, as appropriate. These mitigation measures are identified in Appendix C, Mitigation Measures Common to All Action Alternatives, of the *Yosemite Lodge Area Redevelopment Environmental Assessment*.

Proposed Compensation

Because the project would result in a net gain of restored wetland area and functional value, impacts to disturbed wetlands (0.43 acres of riverine intermittent streambed) would be compensated at a minimum 1 for 1 acreage basis as part of the proposed project restoration actions included in Phase 3 of project development. Wetland compensation will restore wetland habitat within the restoration area identified for this action in an area suitable for wetland restoration. Wetland compensation will include monitoring to ensure successful revegetation, maintenance of plantings, and replacement of unsuccessful plant materials. Restoration and revegetation under the proposed action would offset the adverse construction-related impacts and improve the connectivity, integrity and value of the floodplain and its associated wetlands in the project area.

Site-Specific Mitigation — Subsequent Statement of Findings Necessary

The Yosemite Lodge Area Redevelopment does not include any elements that would require preparation of subsequent Statement of Findings.

Justification

The proposed action would impact 0.43 acre of riverine intermittent streambed and Alternative 3 would impact 0.41 acre of the same wetland type. These impacts would be due to installation and removal of utilities and development of project facilities, including parking areas, roadways, and trails. Riverine intermittent streambeds have low functional value because of the lack of riparian vegetation, low habitat value for wildlife, and limited scenic and cultural value.

Although there are slight differences in the extent of wetland disturbance between the proposed action and Alternative 3, the proposed action was selected over Alternative 3 because of the preferred visitor experience elements associated with the proposed action, including the layout of lodging units and guest parking, the size and number of viewing plazas at the Lodge, the location and size of the Lodge outdoor amphitheater, and the provision of a climbing display building and cooking pavilion at Camp 4.

Non-Wetland Alternatives to the Proposed Action

The southern portion of the Yosemite Lodge Area Redevelopment is within the 100-year floodplain. The purpose of the Yosemite Lodge Area Redevelopment is to implement actions called for in the *General Management Plan* and *Yosemite Valley Plan*³ for the Yosemite Lodge area. Actions described in the *Yosemite Valley Plan Record of Decision* were guided by the goals of the 1980 *General Management Plan* and the 2001 *Merced Wild and Scenic River Comprehensive Management Plan* (Merced River Plan). The specific purposes of the Yosemite Lodge Area Redevelopment reflect the purposes of the *Yosemite Valley Plan* (see *Final Yosemite Valley Plan/Supplemental Environmental Impact Statement*, Volume IA, Chapter 1, page 1-5) within Yosemite Valley to restore, protect, and enhance the resources of Yosemite Valley, provide opportunities for high-quality, resource-based visitor experiences, reduce traffic congestion and provide effective park operations to meet the mission of the National Park Service. There are no alternatives to the proposed action that would be located outside the floodplain or wetland and aquatic habitat of the Merced River.

New Development

The proposed action would develop new utility routings as required for the new building sites (see figure II-7) and develop new roadways, parking areas and trails in or adjacent to riverine intermittent streambeds.

Realignment of Northside Drive and new parking areas are the only new development proposed in the floodplain.

Existing Development

Existing structures include four motel-type buildings (Maple, Alder, Hemlock, and Juniper) an employee Wellness Center, Yosemite Lodge housekeeping facilities, several small structures near Tamarack Cottage, a section of Northside Drive west of Yosemite Creek Bridge, Yosemite Creek Bridge and Yosemite Creek Pedestrian/Bicycle Bridge, Yosemite Lodge roadways, and utilities.

³ As approved by the *Final Yosemite Valley Plan/Supplemental Environmental Impact Statement* Record of Decision and as presented and analyzed in the *Final Yosemite Valley Plan/Supplemental Environmental Impact Statement*.

Utilities within the 100-year floodplain include three groundwater wells that provide drinking water in the Valley, the Yosemite Creek wastewater lift station, and sewer, water, and electric lines.

Revetments (riprap and similar reinforcements) were installed along the banks of Yosemite Creek and the Merced River in attempts to limit erosion and the lateral migration of the stream channels (Milestone 1978). A diversion dam located at the confluence of Yosemite Creek and the Merced River restricts flow across the Merced River floodplain. It was designed to divert high flood flows through an overflow channel and away from guest lodging units in the lower portion of the Yosemite Lodge Area Redevelopment site.

Redevelopment

The Yosemite Lodge Area Redevelopment proposes:

- Replacing the overnight accommodations at Yosemite Lodge that were lost during the 1997 flood, and removing the continued presence of some lodging units within the 100-year floodplain
- Providing a national park lodge experience at Yosemite Lodge instead of the existing motel-type experience. The National Park Service would modify the character of Yosemite Lodge to one more connected to a national park lodge experience and Yosemite Valley
- Replacing some of the campsites in Yosemite Valley that were lost in the 1997 flood
- Reducing traffic congestion on Northside Drive in the vicinity of Yosemite Lodge and Yosemite Falls, and improving the hazardous conditions for pedestrians and bicyclists crossing Northside Drive between the Lodge and Yosemite Falls
- Providing a traditional tribal presence in Yosemite Valley

Structures that would be located in the floodplain include realigned Northside Drive, registration parking lot, a multi-use paved trail, lodge parking and roadways, overnight bus parking, and the sewage lift station.

Conclusion

Overall, the proposed action would have a beneficial impact to the floodplain and wetlands. The semipervious area would be reduced to less than 1% under the proposed action. The proposed action would improve the conditions of the 100-year floodplain by removing the major flow impediments, including guest lodging and maintenance buildings. The proposed action would restore overland flow across the Merced River floodplain, eradicate non-native plants, and re-establish natural riparian habitat on the floodplain. The beneficial effects associated with restoration and revegetation under the proposed action would offset the adverse construction-related impacts. Construction activities associated with the proposed action including installation and removal of utilities and development of project facilities would have minor, adverse impacts due to disturbance of 0.43 acre of wetlands (i.e., riverine intermittent streambed). With implementation of Best Management Practices and mitigation measures (including spill prevention and pollution control program, utilization of wetland protection and compensation measures such as installing protective fencing material to protect wetlands from construction activities, using silt fencing to reduce erosion, etc.), construction impacts to wetlands would be lessened.

Separate permits from other federal and cooperating state and local agencies would be obtained as appropriate prior to construction activities. Mitigation and compliance with regulations and policies to prevent impacts to water quality, floodplain function and values, wetland function and values, and loss of property or human life would be strictly adhered to during and after project construction.

The National Park Service has determined that there is no practicable alternative that would be located outside the floodplain or wetland habitat. Although there are slight differences in the extent of wetland disturbance between the proposed action and Alternative 3, the proposed action was selected over Alternative 3 because of the preferred visitor experience elements associated with the proposed action, including the layout of lodging units and guest parking, the size and number of viewing plazas at the Lodge, the location and size of the Lodge outdoor amphitheater, and the provision of a climbing display building and cooking pavilion at Camp 4.

No long-term adverse impacts to floodplains or wetlands would occur from the proposed action. Impacts to disturbed wetlands would be compensated at a minimum of 1-acre for 1-acre basis as part of the proposed project restoration actions. Restoration and revegetation under the proposed action would offset the adverse construction-related impacts and improve the connectivity, integrity, and value of the floodplain and its associated wetlands in the project area. The proposed action would result in a net gain of restored wetland area and functional value. Therefore, the National Park Service finds the proposed action to be consistent with Director's Order 77-1, including the no net loss wetland policy, and Director's Order 77-2.